

[Appln. No. 09/302,409]

B) a dielectric layer defined as a first dielectric layer sputter deposited over the substrate, the first dielectric layer (B), comprising:

i) first dielectric film comprising at least one film of:
zinc oxide film,
silicon oxide film,
tin oxide film,
silicon nitride film,
silicon oxynitrate film, or
film of an oxide of an alloy of zinc and tin having zinc in a weight percent range of equal to or greater than 10 and equal to or less than 90, and tin in the weight percent range of equal to or less than 90 and equal to or greater than 10, and the film of the oxide of an alloy of zinc and tin of the first dielectric film is defined as a first film of the oxide of an alloy of zinc and tin, and

ii) a second dielectric film deposited over the first dielectric film, the second dielectric film comprising at least one film of:
zinc oxide, tin oxide film wherein the zinc oxide, tin oxide film has tin in the weight percent range of greater than 0 and less than 10 and the majority of the balance zinc, or
film of an oxide of an alloy of zinc and tin having zinc in the weight percent range of equal to or greater than 10 and equal to or less than 90 and tin in the weight percent range of equal to or less than 90 and equal to or greater than 10, and wherein when the dielectric layer (B) has a first dielectric film (i) of an oxide of an alloy of zinc and tin and this second dielectric film (ii) is of an oxide of an alloy of zinc and tin as the second such film, the composition of the first such film is at least about 5 weight percent different in the amounts of zinc

and tin than the composition of the second such film, and

C. an infrared reflective layer deposited on the first dielectric layer.

2
5. (Twice amended) The coated article of claim 4 wherein the infrared reflective metal is silver and the second dielectric film is the zinc oxide, tin oxide film as an electrical enhancing film.

3
6. (Thrice amended) The coated article of claim 4 wherein the first dielectric film is the first film of an oxide of an alloy of zinc and tin, the infrared reflective layer is a silver film and the second dielectric film is the second film of an oxide of an alloy of zinc and tin as an electrical enhancing film.

4
11. (Thrice amended) The coated article of claim 4 wherein the infrared reflective layer is a first infrared reflective layer and further including:

a first metal primer layer over the first reflective layer;

a second dielectric layer over the first metal primer layer, the second dielectric layer comprising a first dielectric film and a film of an oxide of an alloy of zinc and tin defined as a first film of an oxide of an alloy of zinc and tin, the first film of an oxide of an alloy of zinc and tin having zinc in the weight percent range of equal to or greater than 10 and equal to or less than 90 and tin in the weight percent range of equal to or greater than 10 and equal to or less than 90, the first dielectric film of the second dielectric layer deposited over the first metal primer layer;

a second infrared reflective layer deposited over the second dielectric layer;

a second metal primer layer deposited over the second infrared reflective layer;

a third dielectric layer deposited over the second primer layer, and

optionally a protective layer over the third dielectric layer.

12. (Quadruple amended) The coated article of claim 40 wherein the first dielectric film of the second dielectric layer is a zinc oxide film; or a zinc oxide, tin oxide film; or a film of an oxide of an alloy of zinc and tin the latter which is defined as a second film of an oxide of an alloy of zinc and tin for the second dielectric layer and this second film of an oxide of an alloy of zinc and tin of the second dielectric layer has a composition in amounts of zinc and tin different than the composition of the first film of an oxide of an alloy of zinc and tin of the second dielectric layer.

13. (Thrice amended) The coated article of claim 12 wherein the second film of an oxide of an alloy of zinc and tin of the second dielectric layer has zinc in the weight percent range of equal to or greater than 60 and equal to or less than 90 and tin in the weight percent of equal to or greater than 10 and equal to or less than 40, and the third dielectric layer is a film of an oxide of an alloy of zinc and tin.

14. (Thrice amended) The coated article of claim 4 wherein the infrared reflective layer is a first infrared reflective layer and further including:

a first metal primer layer over the first reflective layer;

a second dielectric layer over the first metal primer film;

a second infrared reflective layer over the second dielectric layer;

{Appln. No. 09/302,409}

a second metal primer layer over the second infrared reflecting metal layer;

a third dielectric layer over the second metal primer layer, the third dielectric layer comprising a first dielectric film and a film of an oxide of an alloy of zinc and tin {defined as a first film of an oxide of an alloy of zinc and tin}, the first film of an oxide of an alloy of zinc and tin having zinc in a weight percent with the range of equal to and greater than 10 and equal to or less than 90 and tin within the weight percent range of equal to or less than 90 and equal to or greater than 10, the third dielectric layer deposited over the second metal primer; and

optionally a protective film overlying the third dielectric film.

15. (Thrice amended) The article of claim 14 wherein the first dielectric film of the third dielectric layer is a zinc oxide film or a zinc oxide, tin oxide film or a film of an oxide of an alloy of zinc and tin, which for the latter is defined as a second film of an oxide of an alloy of zinc and tin; the second film of an oxide of an alloy of zinc and tin of the first dielectric film of the third dielectric layer has a composition different in the amount of zinc and tin than the composition of the first film of an oxide of an alloy of zinc and tin of the third dielectric layer.

16. (Twice Amended) The article of claim 15 wherein the second film of an oxide of an alloy of zinc and tin of the third dielectric layer has zinc in the weight percent range of equal to or greater than 60 and equal to or less than 90 and tin in the weight percent range of equal to or greater than 10 and equal to or less than 40.

17. (Thrice amended) The coated article of claim 4 wherein the infrared reflective layer is a first infrared reflective layer and further including:

a first metal primer layer over the first reflective layer;

a second dielectric layer over the first metal primer layer, the second dielectric layer comprising a first dielectric film and a film of an oxide of an alloy of zinc and tin defined as a first film of an oxide of an alloy of zinc and tin, the first film of an oxide of an alloy of zinc and tin having zinc in a weight percent within the range of equal to or greater than 10 and equal to or less than 90 and tin within the weight percent range of equal to or less than 90 and equal to or greater than 10, the second dielectric layer deposited over the first metal primer layer;

a second infrared reflective layer over the first film of an oxide of an alloy of zinc and tin of the second dielectric layer;

a second metal primer layer over the second infrared reflective layer;

a third dielectric layer over the second metal primer layer, the third dielectric layer comprising a first dielectric film and a film of an oxide of an alloy of zinc and tin defined as a first film of an oxide of an alloy of zinc and tin, the first film of an oxide of an alloy of zinc and tin having zinc in a weight percent within the range of equal to or greater than 10 and equal to or less than 90 and tin within the weight percent range of equal to or less than 90 and equal to or greater than 10, the third dielectric layer deposited over the second metal primer layer; and

optionally a protective film overlying the first film of an oxide of an alloy of zinc and tin of the dielectric layer.

18. (Quadruple amended) The coated article of claim 17 wherein the first dielectric film of the second dielectric layer and the first dielectric film of the third dielectric layer each is a film which is a zinc oxide film; or zinc oxide, tin oxide film; or a second film of an oxide of an

alloy of zinc and tin; wherein for the latter the second film of an oxide of an alloy of zinc and tin of the first dielectric film of the first dielectric layer and the second film of an oxide of an alloy of zinc and tin of the first dielectric film of the third dielectric layer has a composition different in the amount of zinc and tin than the composition of the first film of an oxide of an alloy of zinc and tin in the respective same second or third dielectric layer.

19. (Thrice amended) The coated article of claim 18 wherein the second film of an oxide of an alloy of zinc and tin of the second and third dielectric layers each include zinc in the weight percent range of equal to or greater than 60 and equal to or less than 90 and tin in the weight percent of equal to or greater than 10 and equal to or less than 40.

21. (Thrice amended) The coated article of claim 18 wherein the second dielectric layer further includes a third dielectric film over the second film of an oxide of an alloy of zinc and tin of the second dielectric layer wherein the third dielectric film of the second dielectric layer is a film selected from the group consisting of zinc oxide film; zinc oxide, tin oxide film; and a film of an oxide of an alloy of zinc and tin defined as a third film of an oxide of an alloy of zinc and tin, the third film of an oxide of an alloy of zinc and tin has a composition different in zinc and tin than the composition of the film of an oxide of an alloy of zinc and tin of the second dielectric film closest to this third film of an oxide of an alloy of zinc and tin.

22. (Quadruple amended) The coated article of claim 18 wherein the second dielectric film of the second dielectric layer and the second dielectric film of the third dielectric layer each has a film which is a zinc oxide film; or a zinc oxide, tin oxide film; or a film of an oxide of an

[Appln. No. 09/302,409]

alloy of zinc and tin defined as a second film of an oxide of an alloy of zinc and tin, wherein the first and second film of an oxide of an alloy of zinc and tin in the same dielectric layer have different compositions in the amount of zinc and tin.

23. (Thrice amended) The coated article of claim 43 wherein the first and third dielectric films of the second dielectric layer and the first dielectric film of the third dielectric layer each include zinc in the weight percent range of equal to or greater than 60 and equal to and less than 90 and tin in the weight percent of equal to and greater than 10 and equal to or less than 40.

25. (Quadruple amended) A coated article comprising:

- (A) a substrate;
- (B) a first dielectric layer over the substrate;
- (C) a first infrared reflective layer over the first dielectric layer;
- (D) a first metal primer layer over the first infrared reflective layer;
- (E) a second dielectric layer over the first metal primer, the second dielectric layer having:

(i) a first dielectric film comprising at least one film which is:

zinc oxide, tin oxide film wherein this film has zinc in the weight percent range of equal to or greater than 90 and less than 100 and the majority of the balance tin; or

a first film of an oxide of an alloy of zinc and tin and

ii) a second dielectric film, where the second dielectric film has a composition different than the first dielectric film of the second dielectric layer;

(F) a second infrared reflective layer over the second dielectric layer;

(G) a second primer layer over the second reflective layer;

(H) a third dielectric layer over the second metal primer layer; and

(I) optionally a protective layer overlying the third dielectric layer.

26. (Twice Amended) The coated article of claim 25 wherein the first dielectric layer includes a film of an oxide of an alloy of zinc and tin, the second dielectric film of the second dielectric layer is a film of an oxide of an alloy of zinc and tin and the third dielectric layer includes a film of an oxide of an alloy of zinc and tin, each of the films of an oxide of an alloy of zinc and tins having zinc in the weight percent range of 10-90 and tin in the weight percent range of 90-10.

27. (Twice Amended) The coated article of claim 26 wherein the first dielectric film of the second dielectric layer is the first film of an oxide of an alloy of zinc and tin having zinc in the weight percent range of equal to or less than 90 and greater than 60 and tin in the weight percent range of equal to or greater than 10 and equal to or less than 40.

28. (Quadruple amended) A coated article comprising:

(A) a substrate;

(B) a first dielectric layer over the substrate;

(C) a first infrared reflective layer over the first dielectric layer;

(D) a first metal primer layer over the first infrared reflective layer;

(E) a second dielectric layer over the first metal primer layer;

(F) a second infrared reflective layer over the second dielectric layer;

(G) a second metal primer layer over the second reflective metal layer;

(H) a third dielectric layer having:

1) first dielectric film which is: (i) zinc oxide film; (ii) zinc oxide, tin oxide film, wherein the zinc oxide, tin oxide film has either tin in the weight percent range of greater than 0 and less than 10 and the majority of the balance zinc or zinc in the weight percent range of equal to or greater than 90 and less than 100 and the majority of the balance tin; or (iii) a first film of an oxide of an alloy of zinc and tin;

(2) optionally a second dielectric film overlying the first dielectric film, the second dielectric film having a composition different from the first dielectric film; and

(I) optionally a protective film overlying the third dielectric layer.

29. (Twice Amended) The coated article of claim 28 wherein the first and second dielectric layers are each a film of an oxide of an alloy of zinc and tin, and the second dielectric film of the third dielectric layer is a film of an oxide of an alloy of zinc and tin and each of the films of an oxide of an alloy of zinc and tin has zinc in the weight percent range of 10-90 and tin in the weight percent range of 90-10.

30. (Twice Amended) The coated article of claim 29 wherein the first dielectric film of the second dielectric layer has zinc in the weight percent range of equal to or less than 90 and greater than 60 and tin in the weight percent

range of equal to or greater than 10 and equal to or less than 40.

31. (thrice amended) A coated article comprising:
- (A) a substrate;
 - (B) a first dielectric layer over the substrate;
 - (C) a first infrared reflective layer over the first dielectric layer;
 - (D) a first primer layer over the first reflective metal layer;
 - (E) a second dielectric layer having:
 - (1) first dielectric film comprising at least one film of:
 - (i) zinc oxide, tin oxide film, or
 - (ii) first film of an oxide of an alloy of zinc and tin, and
 - (2) second dielectric film overlying the first dielectric film having a composition different than the first dielectric film of the second dielectric layer;
 - (F) a second infrared reflective layer over the second dielectric layer;
 - (G) a second primer layer over the second reflective layer;
 - (H) a third dielectric layer over the second metal primer layer, the third dielectric layer having:
 - (1) first dielectric film comprising at least one film of: a zinc oxide, tin oxide film; or a first film of an oxide of an alloy of zinc and tin; and
 - (2) a second dielectric film, having a composition different than the composition of the first dielectric film of the third dielectric layer;
- wherein the zinc oxide, tin oxide film of the first dielectric film of the second dielectric layer and of the first dielectric film of the third dielectric layer have

41
6/2/41
[Appln. No. 09/302,409]

tin in the weight percent range of greater than 0 and less than 10 and the majority of the balance zinc, zinc in the weight percent range of less than 100 and equal to or greater than 90 and the majority of the balance tin and mixtures thereof; and

(I) optionally a protective film overlying the third dielectric layer.

33. (Twice Amended) The coated article of claim 32 wherein the first dielectric film of the second and third dielectric layers are each a film of an oxide of an alloy of zinc and tin having zinc in the weight percent range of equal to or less than 90 and greater than 60 and tin in the weight percent range of equal to or greater than 10 and equal to or less than 40.